

membrane of a few members of the Cupressaceae, Pinaceae and Podocarpaceae among the gymnosperms and the Isoetaceae, Pilulariaceae and Selaginellaceae among the pteridophytes. The illustrations are arranged in sections dealing with each of the major groups: Gymnospermae, Pteridophyta and Bryophyta. Within each section the figures are placed alphabetically by genus. Reference to the family to which each genus belongs is made only at the beginning of the section. Spore palynograms of the Hepaticae and Musci are ordered alphabetically without regard to their class within the Bryophyta. This treatment makes for much clumsiness in use of the book by other than one well informed with the taxonomy of each group, and is the most serious fault one may find with this publication. Part of the difficulty could have been overcome by cross-referencing all genera to family. An arrangement in conformity with an acceptable taxonomic hierarchy would have been far more satisfactory, however, in gaining understanding of the overall microspore morphology of a family in terms of the representatives illustrated, or in attempting to compare the spore morphology of related families. One other less serious criticism which might be leveled at this publication is that concerning the number of figures and plates (3 out of 5) which have appeared already in other publications which most palynologists and others interested in microspore morphology would have seen. Some 17 figures and plates, in large part, or the only illustrations for *Abies*, *Cedrus*, *Ephedra*, *Keteleeria*, *Picea*, *Pinus*, *Pseudolarix*, *Lycopodium*, *Ophioglossum*, members of the Hedwigiaceae, Schizaeaceae and Marattiales, have already appeared in one or both of two periodicals in 1954 and 1956: the *Svensk Botanisk Tidskrift* and *Grana Palynologica*. We might suggest that this material could have been supplemented by additional data for these genera or groups in the present publication which purports to be a survey of a large group of plants. While not serious, numerous other obvious errors impair slightly the usefulness of this publication. There is no reference to illustrations of members of the Podocarpaceae (Gymnospermae) other than to one figure of the megaspore membrane of *Dacrydium cupressinum*. Microspores of six podocarpaceous genera are figured. Family references have also been omitted from the lists prefacing sections on Pteridophyta and Bryophyta for *Negripteris incana* (fig. 148, p. 81); *Oleandra neriiformis* (fig. 150, p. 81); *Athalamia nana* (fig. 196, p. 101); *Brachiolejeunia sandwicensis* (fig. 198, p. 102); and *Southbya stillicidiorum* (fig. 245, p. 121). Other errors include absence of page numbers for some figures, or mistakes in page numbers for figures and plates.

A brief Introduction discusses exine morphology and the nature of the bladder among the winged (or saccate) gymnosperms (members of the Pinaceae and Podocarpaceae). Some of the terminology used was introduced and defined in the earlier, 1952, publication. Other terms (mesosaccia, aposaccia, cristae marginales, etc.) are apparently newly introduced further to confuse the already over-termed pollen morphologist. A twenty-two page supplement, containing technical articles by B. M. Afzelius and J. Radwan Praglowski on electron microscopy and cutting ultra-thin sections as an aid to study of exine stratification, completes this publication. Praglowski's article is simply and well presented and well illustrated, and is very welcome to those desiring to undertake the sectioning of pollen grain exines.

It is unfortunate that Vol. II has been published without the proposed accompanying text. The appearance of Vol. III, hopefully in the near future, will be awaited with interest.—JANE GRAY, Geochronology Laboratories, University of Arizona, Tucson.

NOTES AND NEWS

THE OCCURRENCE OF *PILOSTYLES THURBERI* (RAFFLESIACEAE) IN CALIFORNIA. In various articles and manuals relating to the vegetation of Arizona and California the suggestion has been made that *Pilostyles thurberi* Gray may occur in the desert areas of southern California. Never, as far as I am aware, has a documentation of this

range extension been published. The plant, parasitic on the branches of *Dalea emoryi* Gray, seems to be an exceedingly elusive one, as it is rarely collected. Only the minute flowers erupt from the host bark, the vegetative body being completely internal.

It is therefore worthwhile to confirm its occurrence in California. The following specimens, all from the Colorado Desert region of California, leave no doubt as to the presence of the parasite in the state: *Goodding 43-19*, 57 miles south of Indio (UC 690661), *Goodding*, 50 miles south of Indio (UCLA), *Wilson*, 30 miles west of El Centro (POM 273347), *Wilson*, near Ocotillo (RSA 43067). All these collections were on *Dalea emoryi*. On a field trip in 1958 I was unable to locate the parasite in any of the California localities. Because of agricultural developments it may not have survived in some of its known California and Arizona sites (perhaps including the type locality in Yuma County, Arizona). It still exists at Wellton, Yuma County, where it grows along the highway (*Kuijt 1490*, UC).

Pilostyles thurberi is the only species of the Rafflesiaceae in California. The other species of *Pilostyles* show an extraordinary geographical distribution. Some are found in Texas and northern Mexico, others in Chile, in Iraq, in Ethiopia, or in southwest Australia. The hosts are invariably leguminous shrubs growing in desert areas.—JOB KUIJT, Department of Botany, University of California, Berkeley.

NOTES ON THE FLORA OF ARIZONA.—Four interesting collections have come to the herbarium of the University of Arizona for identification during the past year. Of these two are genera new to the state, and two represent second collections of species rare in Arizona. Only one is a foreign weed.

Echinodorus berteroi (Spreng.) Fassett (Alismaceae) was collected 1½ miles north of Imperial Dam in the Imperial National Wildlife Refuge, Yuma County, by Gale Monson. It is a new generic record for Arizona, but one that might be expected. *Echinodorus berteroi* ranges from southern California eastward to the West Indies, but, according to Fassett's citation of specimens (Fassett, N. C. 1955. *Echinodorus* in the American Tropics. *Rhodora* 57:133-212), this is the first collection from the Colorado River as well as the first from Arizona.

Cardiospermum halicacabum L. (Sapindaceae), also a genus new to Arizona, was collected by L. N. Goodding and Richard Hevly on a rocky slope in the Coyote Mountains, Pima County. This new locality is about 50 miles north of the International Boundary, while the closest previous collection represented in the University of Arizona Herbarium is near Hermosillo, Sonora, Mexico, about 160 miles south of the border. Although *C. halicacabum* is cultivated as the "balloon vine," the rough, rocky area in which this specimen was growing precludes the possibility that it was an escape.

Beckmannia syzigachne (Steud.) Fernald (Gramineae), collected near Alpine, Apache County, was sent to the University of Arizona for identification by C. L. Isaacson, the county agricultural agent. This collection is the second for the state; the first having been made in 1951 by John Merkle at Greenland Lake, Grand Canyon National Park, Coconino County (Merkle, J. 1953. *Beckmannia syzigachne* (Steud.) Fernald, New Record for Arizona. *Madroño* 12:32). The new collection is about 200 air miles southeast of the first.

Bupleurum rotundifolium L. (Umbelliferae) was brought to the herbarium for identification by a resident of Tucson, Pima County. It was growing in an unseeded, unfertilized section of a yard under an established elm tree (*Ulmus* sp.). This, also, is a second collection, the first having been made in Tucson by Toumey in 1892. Undoubtedly the new collection is a re-introduction of this Mediterranean weed, but the seed source is unknown.

Representatives of all of these collections are on file in the Herbarium of the University of Arizona.—CHARLES T. MASON, JR., Department of Botany, University of Arizona, Tucson.